

R E M A R K S

The office action of February 23, 2010 has been reviewed and its contents carefully noted. Reconsideration of this case, as amended, is requested. Claims 1 through 6 and 15 through 27 remain in this case, claims 15 and 22 being amended by this response. No new matter was introduced by these amendments. Specifically, claims 15 and 22 were amended for clarity. The amendments to claim 22 are supported by page 4, lines 2-4 of the application as filed.

The Examiner's attention is drawn to the fact that submitted herewith is evidence as to the non-obviousness of the invention as claimed in the form of an inventor declaration under 37 C.F.R. § 1.132 (referred to herein as the "Combs Declaration").

The numbered paragraphs below correspond to the numbered paragraphs in the Office Action.

Preliminary Comments

Applicant's claim 1 claims a testing system for testing an automated system, and claim 15 claims a method of testing and evaluating an automated system. The automated system is operable in the absence of the testing system and is not part of the testing system. The testing system collects data from the automated system typically without affecting operation of the automated system. The collected data may then be reviewed by a user of the testing system to determine whether the automated system is operating properly. None of Laird, Moran, and Auty have anything to do with testing the operation of an automated system. Applicant's understanding is that the Examiner is applying the primary reference, Laird, with the traffic signal being the automated system and the traffic light violation detection system being compared to Applicant's claimed testing system. Laird's traffic light violation detection system can not be interpreted as both an automated system and a testing system as claimed by Applicant. If the Examiner is applying Laird in a different manner than Applicant's understanding, Applicant respectfully requests that she clarify how she is applying Laird.

Rejections under 35 U.S.C. § 103

4. Claims 1, 3-6, 15-18, and 20-27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Laird *et al.* (U.S. Patent No. 6,647,361) in view of Moran *et al.* (U.S. Patent No. 6,332,147). Applicant respectfully disagrees with the rejection.

Independent claim 1 includes, in part, a “testing system for collecting, storing, and reviewing digital data, serial data, and video data related to events occurring in an automated system comprising a plurality of subsystems comprising an automated controller and at least one peripheral sensor under the direction of the automated controller, the testing system comprising:

a) a digital signal capture card for sensing and collecting discrete digital signals from the automated system as digital data;

b) a multi-port serial port expansion card for sensing and collecting serial digital communication messages between the subsystems as serial data;

c) a video frame grabber and compression card for sensing and collecting video signals as video data;

d) a device for indexing and storing said digital data, serial data, and video data with time tags, wherein said time tags are used for relating occurrence of a particular item of a particular data type, whether digital data, serial data, or video data, to the most closely time-related data item from the other said data types; and

e) a display for control of said testing system and presentation of said digital data, serial data, and video data in separate windows on the display to a user during review;

wherein the display displays each data type, whether digital data, serial data, or video data, in a time-synchronized manner in the separate windows based on the time tags”(emphasis added).

Laird teaches a system for filtering non-violation events in a traffic light prediction and recording system. Laird does not teach or suggest a testing system for collecting, storing, and reviewing digital data, serial data, and video data related to events occurring in an automated

system. Laird is not at all concerned with the proper operation of the automated system, namely the traffic light system. Laird only cares about vehicle behavior in response to the traffic lights for law enforcement purposes. In contrast, the invention of claim 1 is a testing system for collecting, storing, and reviewing digital data, serial data, and video data related to events occurring in an automated system. In contrast to Laird, if the invention of claim 1 were applied to an automated traffic light system, the test system would be concerned with the operation of the traffic light system, for example, whether the timing of the lights operated as expected and whether the expected time delay after a car triggered the road surface sensor occurred. The testing system would not be concerned with the details of the vehicles, such as the license plate, the driver, or the physical appearance of the vehicle, all of which are of critical importance to Laird.

The violation enforcement system taught by Laird collects video and digital data and performs a specific task, namely detection of traffic-light violations and capture of images of the violating vehicles. The system of Laird uses video data to derive information about the vehicle position, velocity, and acceleration. The system of Laird uses the digital data to determine the phase of the traffic signal and applies application-specific software or “business rules” to perform the tasks for violation detection, recording, and presentation of data to the user. Laird teaches taking the violation process beyond the recording and playback devices and offers a proposed template for a hardcopy violation notice to be sent to the violating driver.

Serial digital communication messages between subsystems in an automated system provide an indication of why the automated system acted the way it did, and they can be very helpful in evaluating why the automated system malfunctioned in a particular situation. Thus, monitoring for and collecting this serial data is significant for the testing system of claim 1. Laird has no use for any serial digital communication messages between subsystems of the traffic light system, because Laird is not concerned with operation of the light but only the current state of the light and the behavior of vehicles in response to the current state of the light.

The Examiner points to Figs. 28, 29, and 32 and their associated descriptions as teaching the collection and display of serial digital communication messages between subsystems of the automated system. Fig. 28 of Laird only teaches vehicle data that may be acquired from collected

video data. Fig. 29 of Laird teaches further vehicle data as well as data regarding the light phase of the traffic light system. Fig. 32 of Laird teaches multiple video images on a single display along with some data including a time after a red phase of the light started. The Examiner mentions “speeds and times” as serial communication messages. Speeds and times in Laird’s system, however, are derived from the video data and have nothing to do with the traffic light system. Speeds and times are not serial digital communication messages from the traffic light system. All of the data in these referenced sections is acquired either directly or indirectly from video images. None of this data is a serial digital communication message and none is acquired from the automated system, namely the traffic light system. None of these three figures, or their detailed descriptions, disclose the recording or display of serial digital communication data as defined by the Applicant.

In claim 1 of the present application, the subsystems are part of the automated system. The Examiner points to Fig. 5 of Laird as showing the subsystem. The only subsystems of the automated system (traffic light system) in Fig. 5 of Laird would be the light control box and the traffic light. Laird only teaches coupling of the violation enforcement system to the light control box to determine the current phase of the traffic light, which is not a serial digital communication message between subsystems of the traffic light system.

Laird teaches a system that, on a superficial level, collects video and discrete digital data (such as the current light phase via the traffic control box) of a traffic light system but does not include the collection of serial digital communication messages within the traffic light system. Laird is concerned with the behavior of vehicles in response to the traffic light system. Laird is not concerned with the functioning of the traffic light system. Laird does not teach or suggest a testing system for an automated system [see also points 13 and 14 of the “Combs Declaration”] and does not teach or suggest a multi-port serial port expansion card for sensing and collecting serial digital communication messages between subsystems of an automated system by tested by a test system [see also points 15 and 16 of the “Combs Declaration”]. Since Laird does not teach or suggest a testing system or collecting serial digital communication messages, Laird necessarily does not teach or suggest a display for control of the testing system and presentation of digital data, serial data, and video data in separate windows on the display.

Regarding claim 1, Moran does not provide what Laird lacks. Moran teaches a system to run and record a meeting using a shared electronic medium, such as audio, video, and an electronic whiteboard or other shared electronic images and to review the recorded meeting. Moran does not teach or suggest a testing system [see also points 18 and 19 of the “Combs Declaration”]. Moran teaches a single automated electronic recording and playback system. Unlike the invention of claim 1, there is no second system. Moran does not teach or suggest a multi-port serial port expansion card for sensing and collecting serial digital communication messages between subsystems of an automated system by tested by a test system [see also points 20 and 21 of the “Combs Declaration”]. Since Moran does not teach or suggest a testing system or collecting serial digital communication messages, Moran necessarily does not teach or suggest a display for control of the testing system and presentation of digital data, serial data, and video data in separate windows on the display.

Neither Laird nor Moran, alone or in combination, teach or suggest Applicant’s amended claim 1. Therefore, it is respectfully suggested that independent claim 1 is not obvious over Laird in view of Moran. Dependent claims 3-6 and 24-27, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations they contain. Reconsideration and withdrawal of the rejection of claims 1, 3-6 and 24-27 are respectfully requested.

Amended independent claim 15 includes, in part, a “method of testing and evaluating an automated system comprising a plurality of subsystems comprising an automated controller and at least one peripheral sensor, the method comprising the steps of:

- a) operatively interconnecting a testing system to the automated system;
- b) collecting discrete digital signals of the automated system generated during operation of the automated system as digital data with the testing system;
- c) monitoring for serial digital communication messages between the subsystems generated during operation of the automated system with the testing system and collecting the serial communication messages as serial data;

d) collecting video images of the automated system during operation of the automated system as video data;

e) indexing said digital data, serial data, and video data with time tags;

f) recording said digital data, serial data, and video data on a hard disk drive of the testing system; and

g) displaying said digital data, serial data, and video data in separate windows on a single display in a time-synchronized manner based on time tags” (emphasis added).

Laird teaches methods of detection, recordation, and enforcement of traffic violations. Laird does not teach or suggest a method of testing and evaluating an automated system [see also points 13 and 14 of the “Combs Declaration”]. As discussed above, Laird does not teach or suggest monitoring for or collecting serial digital communication messages between subsystems of the automated system [see also points 15 and 16 of the “Combs Declaration”]. Laird is not at all concerned with the proper operation of an automated system, namely the traffic light system. Laird only cares about vehicle behavior in response to the traffic lights for law enforcement purposes. In contrast, the invention of claim 15 is a method of testing and evaluating the operation of an automated system. In contrast to Laird, if the invention of claim 15 were applied to an automated traffic light system, the method would be concerned with the operation of the traffic light system, for example, whether the timing of the lights operated as expected and whether the expected time delay after a car triggered the road surface sensor occurred.

Since Laird does not teach or suggest a method of testing an automated system or collecting serial digital communication messages, Laird necessarily does not teach or suggest indexing digital data, serial data, and video data with time tags, recording digital data, serial data, and video data on a hard disk drive of the testing system, or displaying digital data, serial data, and video data in separate windows.

Regarding claim 15, Moran does not provide what Laird lacks. Moran teaches methods of running and recording a meeting using a shared electronic medium, such as audio, video, and an electronic whiteboard or other shared electronic images and methods of reviewing the recorded meeting. Moran does not teach or suggest a method of testing an automated system [see also

points 18 and 19 of the “Combs Declaration”]. Moran does not teach or suggest collecting serial digital communication messages from an automated system [see also points 20 and 21 of the “Combs Declaration”]. Since Moran does not teach or suggest a method of testing an automated system or collecting serial digital communication messages, Moran necessarily does not teach or suggest indexing digital data, serial data, and video data with time tags, recording digital data, serial data, and video data on a hard disk drive of the testing system, or displaying digital data, serial data, and video data in separate windows.

Neither Laird nor Moran, alone or in combination, teach or suggest Applicant’s amended claim 15. Therefore, it is respectfully suggested that independent claim 15 is not obvious over Laird in view of Moran. Reconsideration and withdrawal of the rejection of claim 15 are respectfully requested.

Dependent claim 22 includes, in part, the step of “regenerating the discrete digital signals from the digital data and supplying the discrete digital signals as inputs to the automated system in a format and a timing of an original sequence of events to simulate the original sequence of events” (emphasis added).

This feature of the invention is described on page 10, line 20 to page 11, line 5 of the application as filed. The Examiner indicates that this step is shown in Figs. 4 and 32 and col. 26, l. 65 - col. 28, l. 32 of Laird and in Fig. 4 and col. 19, l. 1-65 of Moran. These sections of Laird and Moran, however, simply describe playback of the collected and recorded data for review by a user for a particular time period [see also points 17 and 22 of the “Combs Declaration”]. The data signals are not supplied back to an automated system under test that generated the original signals to evaluate the response of the automated system to the signal.

Neither Laird nor Moran, alone or in combination, teach or suggest regenerating discrete digital signals from digital data and supplying discrete digital signals as inputs to an automated system. Neither Laird nor Moran, alone or in combination, teach or suggest Applicant’s amended claim 22. Therefore, it is respectfully suggested that independent claim 22 is not obvious over Laird in view of Moran.

Dependent claim 23 includes, in part, the step of “evaluating a response by the automated system to the inputs”.

The Examiner indicates that this step is shown in the same sections of Laird and Moran as the step of claim 22, but since neither Laird nor Moran teaches or suggests regenerating discrete digital signals from digital data and supplying discrete digital signals as inputs to an automated system (see argument above), neither can evaluating a response by the automated system to the inputs [see also points 17 and 22 of the “Combs Declaration”]. Neither Laird nor Moran, alone or in combination, teach or suggest Applicant’s amended claim 23. Therefore, it is respectfully suggested that independent claim 23 is not obvious over Laird in view of Moran.

Dependent claims 16-18 and 20-23, being dependent upon and further limiting independent claim 15, should also be allowable for that reason, as well as for the additional recitations they contain. Reconsideration and withdrawal of the rejection of claims 16-18 and 20-23 are respectfully requested.

6. Claims 2 and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Laird *et al.* (U.S. Patent No. 6,647,361) in view of Moran *et al.* (U.S. Patent No. 6,332,147) and further in view of Auty *et al.* (U.S. Patent No. 5,809,161). Applicant respectfully disagrees, and believes the claims, as amended, are patentable over Laird and Moran, individually and in combination, for the reasons given above in respect to the section 103 rejection of claims 1 and 15, from which claims 2 and 19 depend, respectively. The argument above as to the non-obviousness of claims 1 and 15 is repeated here by reference.

Regarding claim 1, upon which claim 2 depends, Auty does not provide what Laird and Moran lack. Auty teaches an object monitoring system including a camera to monitor moving objects, preferably vehicles, and image processing circuitry to detect a predetermined moving object from other moving and static objects in the video. Auty does not teach or suggest a testing system [see also points 23 and 24 of the “Combs Declaration”]. Auty teaches a single video data acquisition, recordation, and analysis system. Unlike the invention of claim 1, there is no second system. Auty does not teach or suggest a multi-port serial port expansion card for sensing and collecting serial digital communication messages between subsystems of an automated system

by tested by a test system [see also points 25 and 26 of the “Combs Declaration”]. Since Auty does not teach or suggest a testing system or collecting serial digital communication messages, Auty necessarily does not teach or suggest a display for control of the testing system and presentation of digital data, serial data, and video data in separate windows on the display.

None of Laird, Moran, and Auty, alone or in combination, teach or suggest Applicant’s amended claim 1. Therefore, it is respectfully suggested that independent claim 1 is not obvious over Laird in view of Moran and further in view of Auty. Dependent claim 2, being dependent upon and further limiting independent claim 1, should also be allowable for that reason, as well as for the additional recitations it contains. Reconsideration and withdrawal of the rejection of claim 2 are respectfully requested.

Regarding claim 15, upon which claim 19 depends, Auty does not provide what Laird and Moran lack. Auty teaches a method of monitoring objects, preferably vehicles, using a camera and processing the images to detect a predetermined moving object from other moving and static objects in the video. Auty does not teach or suggest a method of testing an automated system [see also points 23 and 24 of the “Combs Declaration”]. Auty does not teach or suggest collecting serial digital communication messages from an automated system [see also points 25 and 26 of the “Combs Declaration”]. Since Auty does not teach or suggest a method of testing an automated system or collecting serial digital communication messages, Auty necessarily does not teach or suggest indexing digital data, serial data, and video data with time tags, recording digital data, serial data, and video data on a hard disk drive of the testing system, or displaying digital data, serial data, and video data in separate windows.

None of Laird, Moran, and Auty, alone or in combination, teach or suggest Applicant’s amended claim 15. Therefore, it is respectfully suggested that independent claim 15 is not obvious over Laird in view of Moran and further in view of Auty. Dependent claim 19, being dependent upon and further limiting independent claim 15, should also be allowable for that reason, as well as for the additional recitations it contains. Reconsideration and withdrawal of the rejection of claim 19 are respectfully requested.

Conclusion

Applicant believes the claims, as amended, are patentable over the prior art, and that this case is now in condition for allowance of all claims therein. Such action is thus respectfully requested. If the Examiner disagrees, or believes for any other reason that direct contact with Applicant's agent would advance the prosecution of the case to finality, she is invited to telephone the undersigned at the number given below.

"Recognizing that Internet communications are not secured, I hereby authorize the PTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file."

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